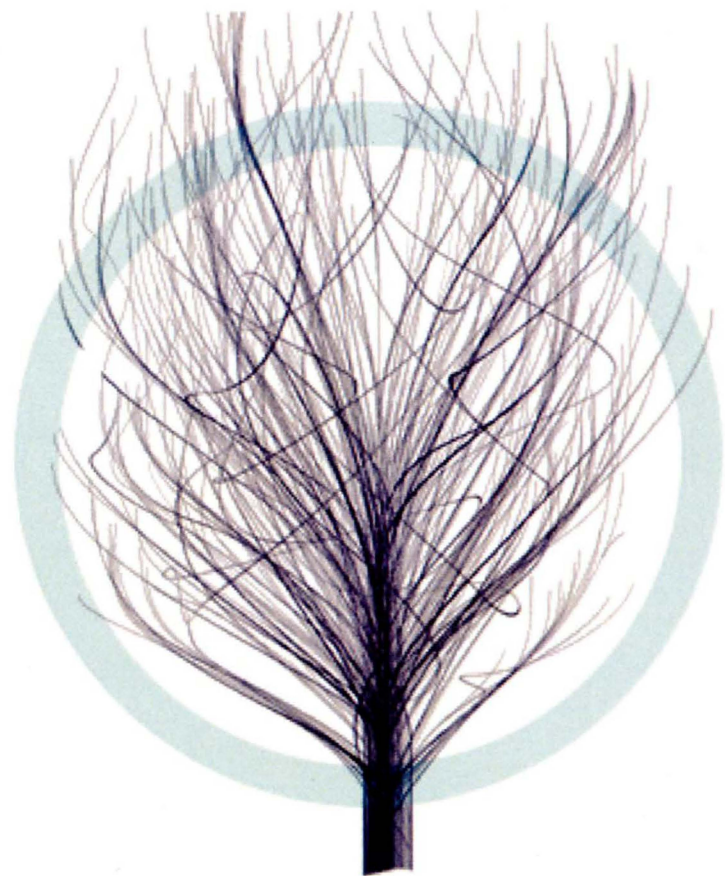


Tributaries



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Editor: Benjamin E. Heller

Assistant Editor: Alicia Tardugno

Literary Editor: Jana Fuson

Advisor:

Dr. Maureen Goldstein

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Photography by- Brian Heller

The Prominence of Nature in Washington Irving's "Rip Van Winkle"

- Alicia Valbuena

In Washington Irving's "Rip Van Winkle," Rip's character is closely correlated with the theme of nature and its prominence over the ever-changing world. The story is set in the Kaatskill Mountains, an important setting with a luminance that does not falter throughout. Similarly, Rip is immediately described as a respectable and well liked man in his mountainous setting. Initially, the two can be easily associated. Magical elements in the story cause Rip to fall asleep for twenty years, and upon waking, he is in a world completely changed by the natural progression of time. However, despite the extreme alterations, only Rip and the nature that he is so familiar with are able to prevail, remaining ultimately unaffected by the new world.

Irving's story concludes rather triumphantly with Rip completely at ease with the political and social changes in his village. His character is clearly unchanged, a positive virtue, which has allowed his contentment to continue, even after the close of the story itself. However, some scholars deny Rip's superiority by stating that, "the last line announces the happy ending...yet, if the weight of the prior meaning does not make the ending ironical, it surely renders it ambiguous. If Rip is happy, then he is either insensitive-does not realize the implications of the changes that have occurred-or selfish-feels that they are outweighed by the loss of Dame Van Winkle," (Roth 251). Conversely, it is easily recognizable that the changes are for the better; the village is now independent, free of the rule of England, and they have a democracy with politics and elections all their own. As Rip notes, "the ruby face of King George ...even this was singularly metamorphosed. The red coat was changed for one of blue and buff, a sword was stuck in the hand instead of a scepter, the head was decorated with a cocked hat, and under



neath was painted in large characters, GENERAL WASHINGTON," (Irving 961). Society has progressed in ways that Rip and his fellow citizens would never have anticipated twenty years before. It is evident Rip sees these alterations, yet Roth still remarks that "it is untenable that Rip should be allowed to slip back into folk contentment at the end, or that the middle could be a Gothic adventure, when the village which frames the story is the scene of such a drastic transition. Rip must be responsible for the change, and the adventure must be datum of his responsibility," (Roth 251). Roth believes that one cannot defend for the improbability of Rip's content at the end of the story because so much has changed. However, the blame should not be placed on Rip, but rather on time itself. Naturally, things modernize and change with time; it is just Rip's innate ability to accept and adapt to this change that makes him stand out from everyone else. From the very beginning of the story, Irving gives Rip a strong delegation, shown through his immediate description of Rip. This description renders Rip to be a well liked man, and "simple and good natured," (Irving 954). Despite this pressing refute to the idyllic proposal of Rip's reverence and his parallelism to the nobility of nature depicted in the opening lines of the story, it remains undeniable that Rip is neither insensitive nor selfish, but instead is a true patriarch of his mountainous village.

When the constant nagging of Rip's wife becomes overbearing, Rip is forced to flee to the highest peak of the mountains where he is surrounded by nature, and thus at ease with himself. However, Irving introduces a twist; the nature of the mountains casts a magical command upon Rip and forces him into a sound sleep for twenty years. "The fantasy involved is clear enough, but it is told from the irascible point of view of a highly suspect historian named Diedrich Knickerbocker. Elaborately qualified in three addenda to the body of the tale (a preamble, an added note, and a postscript), Knickerbocker operates as one of the first exercises in ambiguity of American fiction" (Ferguson 529). When he awakes, Rip finds himself an old man in a place that was, at first, alarmingly unfamiliar. Society has progressed, and the changes in the village were unmistakable. The streets were much busier, the houses more populated, and their former status as a colony no longer existed, having gained their independence from Great Britain. Even Rip himself had grown a long, tousled beard and aged significantly. In spite of his initial dismay upon waking, Rip is able to perceive his ambience rather quickly, using none other than the proverbial nature as his loyal guide: "There stood the Kaatskill Mountains-there ran the silver Hudson at a distance-there was every hill and dale precisely as it had always been" (Irving 706). Right away, nature is the one thing that Rip relies on to warrant his location, and uses it as a means to attaining fleeting solace before his descent into the village. Despite the impossibility of the situation, Irving never offers any explanation for the magic, leaving the reader with a feeling of ambiguity. This ambiguity can be read as

additional evidence of Rip's innate ability to resist change in his character in that, despite the magic, Rip's relaxed temperament allows him to persevere.

The setting also constitutes as a key element and important role in the story, since it is carefully aligned with the main character. It is noteworthy to know that the Kaatskill Mountains are part of the Appalachian chain, which runs through a series of states in the mid eastern section of the United States. Yet, the Kaatskills are not an immediate link to the rest of the chain. Instead, they stand apart, ostracized by the natural terrain of the land, instantly suggesting that they encompass a greater status than anything else within their surroundings. Their reverence continues as Irving describes these mountains to be noble and lording; having "magical hues and shapes, [and are] regarded by all the good wives, far and near, as perfect barometers," (Irving 954). The language used in these opening paragraphs emphasizes the setting with an easily recognizable connotation, which compares the mountains to a god of sorts, ruling over the land. This attention that Irving put into this early description was not by mistake. He wanted the reader to understand the importance of the setting, as it will play a significant role as an underlying theme of the story.

Almost as soon as this grand setting is told, the designation of the story itself, the character Rip Van Winkle, is introduced. He is depicted ideally, as well, said to be simple and widely liked, and most importantly, good natured. Without hesitation, it is stated that he is a descendant of a family who played a more than respectable role in the history that helped to capture and establish the land that is now his mountainous village. He is recognized as more than the average citizen already, one of great influence, not unlike nature itself. "He was, moreover, a kind neighbor and an obedient henpecked husband. Indeed, to the latter circumstance might be owing the meekness of spirit which gained him such universal popularity," (Irving 954). Despite this constant distressing of his spouse, made eminent in the opening pages of the story, Rip was able to ignore the chronic squabbling and seek elsewhere for loyal friendships, which in turn, boosted his regard. Both the setting and Rip are distinguished from the beginning, holding significance unmatched by anything else.

The story is not only a tale of a plain minded man, but also one of an idolization of man attributed to the simplicity of growing old. The magical elements in the story remain unaccounted for and may raise the question, "yet the reader may legitimately wonder on which level of reality the alterations occurred, in what stream of human time-consciousness do the changes register? (not really a question)...Yet Rip and his friends have little trouble accommodating themselves to this environment...The real, profound changes are the ongoing perpetual ones, those of morality, of growing up and growing old," (Rubin 400). Although it is society that has changed, Rip has almost no trouble

adjusting, suggesting that he encompasses a greater rank than the average citizen. His nobility is like the Kaatskills themselves, and his perseverance like the prominent Hudson River that has been cutting through the village for thousands of years. To Rip, perhaps there never even is a conflict. Even though he is at first alarmed by the changes in the village, he only displays discomfort for a short while before finding himself accepted once again by his familiar elders and the buoyant youths. He "resumed his old walks and habits; he soon found many of his former cronies, though all rather the worse for the wear and tear of time...and [made] friends among the rising generation," (Irving 963). Therefore, the problem lies not in Rip's own will, but instead in the inevitability of growing old. Everyone must endure changes in both themselves and their environment as one's life progresses, but it is how each of us permits these changes to affect our character that determines the level of satisfaction we have in our lives. Rip's character does not waver despite this overwhelming change; thus, he is able to remain unchanged, with his only acquaintance of equal supremacy being nature.

However, Rip Van Winkle is not a perfect man and does not lead the perfect life; but he displays a certain proficiency to persevere through a grand conflict unlike any other. He makes mistakes throughout the course of his life, but wins our admiration by overcoming his error, with superior persistence every time. "Rip Van Winkle prospers as an American literary hero and an international favorite from the moment he appears... leading critics do not exaggerate by much when they claim that Rip 'presides over the birth of the American imagination' as the 'guardian angel' and 'symbol of the mythic American'" (Ferguson 529). His ascendancy is further embedded with the theory that maybe he is not even aware of his calamities, and therefore is able to triumph over his misfortunes naturally because he truly is one with nature. Upon his initial introduction, Rip's primary flaw is stated; however, it is one of farfetched blunder. He is said to have "an insuperable aversion to all kinds of profitable labour...ready to attend to any body's business but his own," (Irving 955). He is eager to aid others with their work, with no desire for any sort of profit for himself. He displays a poor concern for matters with his own family, perhaps due to his dissatisfaction with his wife, but nevertheless, is always consciously working to ensure the well being of others. Again, it is difficult to find true flaw in Rip's tendencies. Without this imperfection in his life, Rip would have no reason to flee to the mountains, and consequently would never have fallen asleep for twenty years. "For although Rip's failures are evident, he manages to solve problems we cannot solve," (Ferguson 529). (Shouldn't stand alone) It is because of this natural imperfection that Rip's true merit is able to emanate, placing him in conjunction with none other than the hierarchy of the nature surrounding his village.

Both Rip Van Winkle and the nature that will always surround him are the only

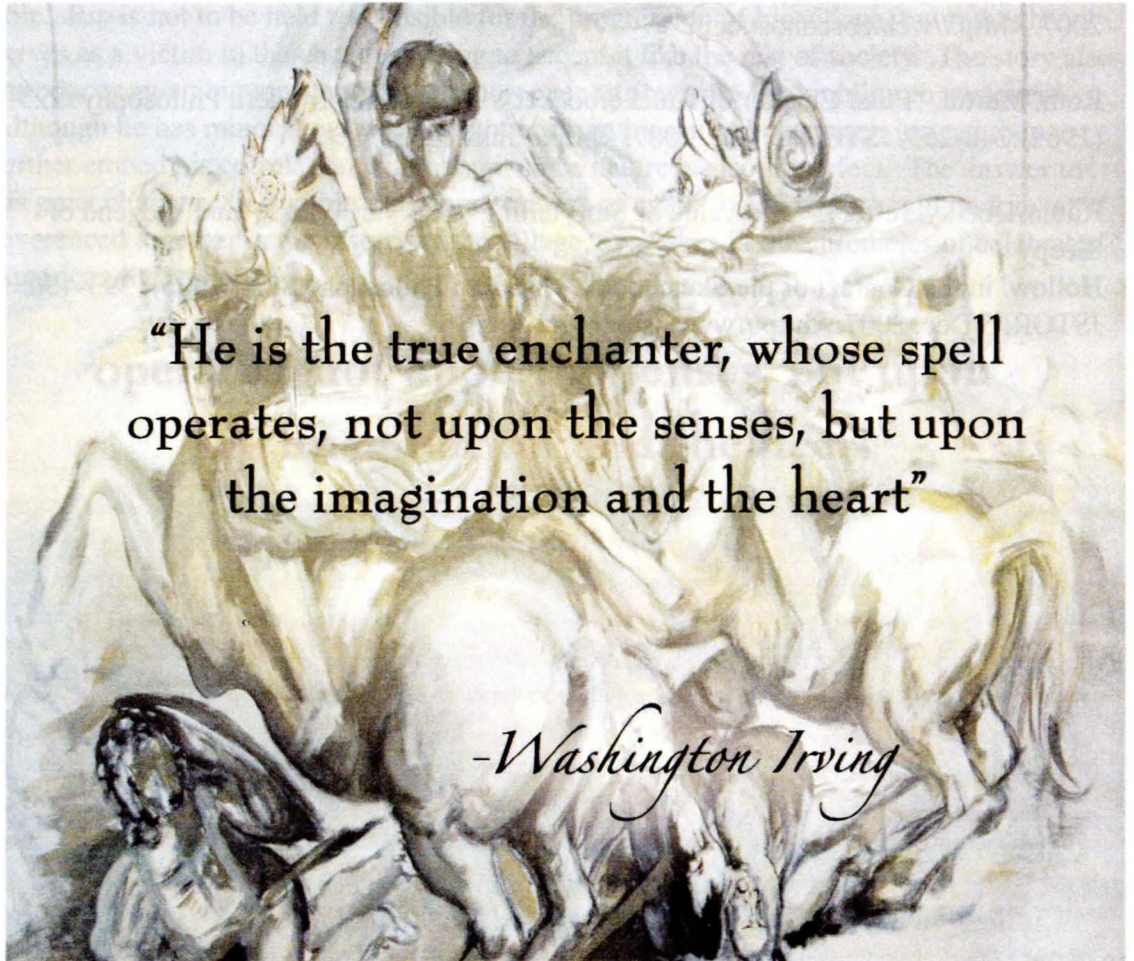
two things that have the intrinsic ability to prevail through insurmountable changes over this span of twenty years. They are mutually described with distinguished reverence upon the onset of the story, and continue this ideal throughout, thus making Rip more than the average protagonist. Despite various refutes stating that Rip is selfish and insensitive, one can tell, based on the story's ideal conclusion, the proof otherwise is unavoidable. Rip is not to be held responsible for the progression of his village, but rather he serves as a victim to the change, having to accept it like the rest of society. The story also introduces an ambiguous tone, which moreover attributes to Rip's ability to persevere. Although he has minor flaws, they do not obstruct his natural character; instead they further embed his correlation with nature, since nature is also imperfect. The answer to his great character lies within the characteristics of nature itself, as both will be forever revered together in the history of the village, as well as in the chronicles of celebrated American literature.

Work Cited

Ferguson, Robert A. "Rip Van Winkle and the Generation Divide in American Culture." Early American Literature 3 (2005): 529-544. Academic Search Premier. EBSCOhost. 5 Dec. 2007. <<http://web.ebscohost.com>>

Roth, Martin. "Final Chapter of Knickerbocker's New York." Modern Philosophy 66.3 (1969):248-255. JSTOR. 5 Dec. 2007. <<http://links.jstor.org/>>

Rubin-Dorsky, Jeffery. "The Value of Storytelling: 'Rip Van Winkle' and 'Legend of Sleepy Hollow' in the Context of the Sketchbook." Modern Philosophy 82.4 (1985): 393-406. JSTOR. 5 Dec. 2007. <<http://www.jstor.org/>>



“He is the true enchanter, whose spell operates, not upon the senses, but upon the imagination and the heart”

-Washington Irving

Painting by- Benjamin Heller

Chivalry versus the World in Miguel Cervantes' Don Quixote

-Jana Fuson

What happens when one person tries to restore knight-errantry in a time when chivalry is out of fashion? Is it possible for that person to be successful? Miguel Cervantes explores this theme through the protagonist in *Don Quixote* who sets out on a mission to do just this. After years spent reading literature about chivalric knights, a fifty year old gentleman decides to transform himself into Don Quixote of La Mancha in order to revive knight-errantry in sixteenth century Spain. Don Quixote epitomizes the characteristics of the famed knights, yet he ultimately fails in his endeavors because of the world's negative reception of his ardent convictions of chivalry.

According to the Knight's Code of Chivalry described in the Song of Roland ("Medieval Code of Chivalry"), some of the chivalric traits include loyalty to one's lady, bravery, honorable, honesty, respect, protective of the weak and defenseless, and dismissive of any pecuniary rewards. Don Quixote possesses all of these necessary qualities to be a chivalric knight. As many critics have observed, Don Quixote often refers to one of his favorite characters, Amadis of Gaul, as his primary role model. Manuel Duran affirms that "Don Quixote is always ready to model his behavior, his system of values, his emotional attitudes, upon those of his favorite knight-errant, Amadis of Gaul" (113). For example, Don Quixote's entire sojourn in the Sierra Morena is an imitation of one of the knight's adventures to do penance for his lady love. Don Quixote himself claims that "Amadis was the North Star," (Cervantes 241) the guiding light for all knights-errant.

Don Quixote fails to realize, however, that these beliefs of chivalry are not only out of fashion, but also out of public memory. In many instances throughout the novel, he encounters people who can neither understand his eloquent manner of speaking nor the sense of honor to which he adheres. When Don Quixote stops at the inn he mistakes for a castle on his first adventure, he generously compliments the ladies of the inn. However, "the strange language of the knight was not understood by the ladies" (Cervantes 65), nor were they accustomed "to such flourishes of rhetoric" (Cervantes 66). Since he is the only one among them who is familiar with books of chivalry, he is the only one who can com

prehend its flowery words and phrases. In another instance, Don Quixote comes across a man whipping his servant, and he demands an explanation. He judges the young servant to be innocent of any wrongdoing and makes the young man's master swear "upon his oath" (Cervantes 75) that he will compensate the boy. Don Quixote walks off, satisfied by his good deed. Yet, when Don Quixote is out of sight, the man resumes beating his servant despite the oath. The man does not conform to the system of honor that Don Quixote expects him to. W.H. Auden says of Don Quixote, "When he is not deluded as to the nature of those he is trying to help...he only succeeds in making things worse and earns enmity, not gratitude" (79). It is so in this situation-- his intention was to do a good deed, but this is not the result. He believes that everyone desires to do the same, and that is where his plans are confronted with a problem.

Before Don Quixote's first adventure, he reflects on the "grievances he intended to rectify, the wrongs he resolved to set right, the harms he meant to redress, the abuses he would reform, and the debts he would discharge" (Cervantes 62) as a knight-errant, all of which are very idealistic goals. First, however, it is necessary for him to be dubbed a knight. Recognizing Don Quixote's insanity, the innkeeper where he stays decides to humor his request to dub him so that "he might have sport that night (Cervantes 69). The evening becomes a spectacle for him and his other guests. Don Quixote observes the custom of watching his armor the night before his dubbing, proving his devotion to the system of chivalry. To the guests, though, the 'ceremony' itself is a matter of some mirth. Don Quixote alone views the event seriously. Indeed, it took some strength of will "to prevent them all from bursting with laughter" (Cervantes 73). Their unruly behavior contrasts drastically with Don Quixote's seriousness on the occasion.

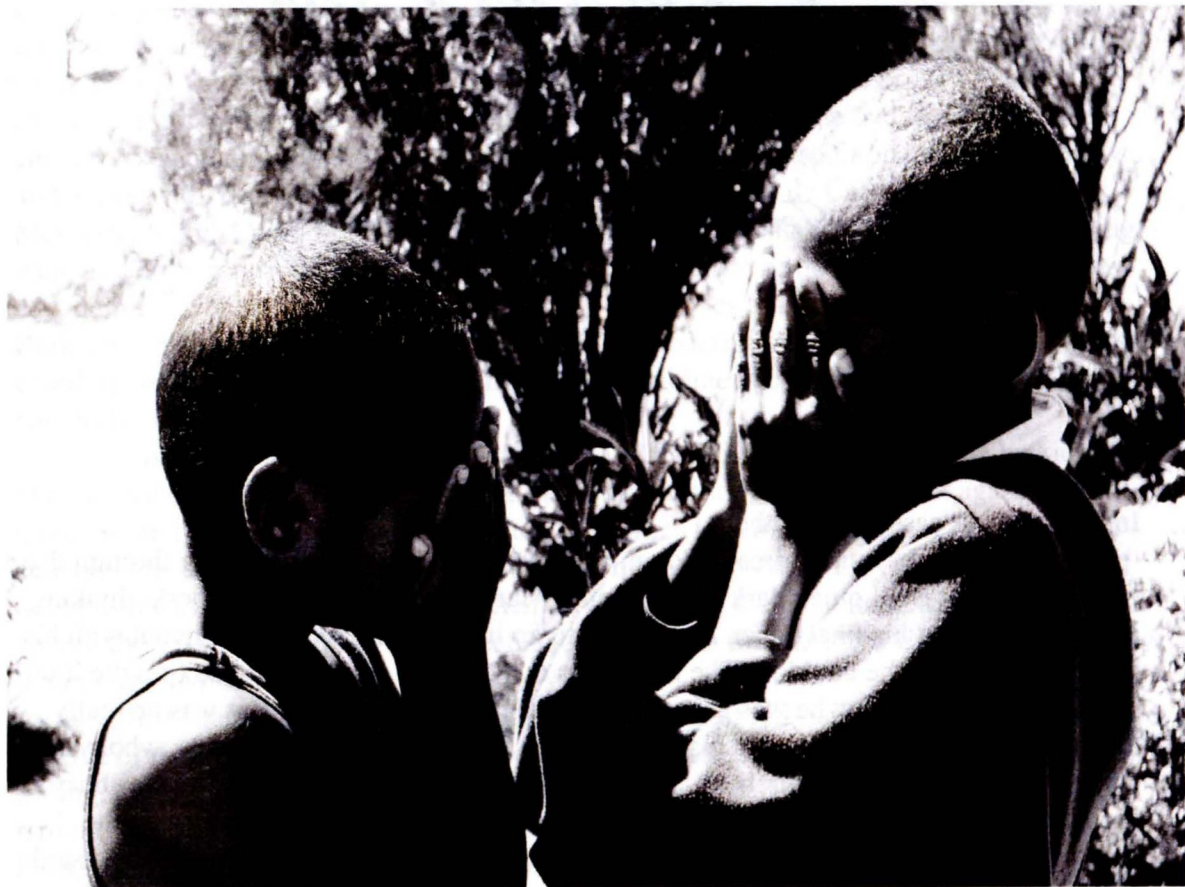
The world's reception of Don Quixote is especially seen in his stay with the Duke and Duchess. They see Don Quixote as merely a form of entertainment to alleviate the tedium of their lives. On arriving at their home, they introduce Don Quixote with great ceremony and respect, and "for the first time...he felt thoroughly convinced that he was a knight-errant in fact and not in imagination" (Cervantes 745). Their motives for welcoming him, though, are not altogether pure. The entire household knows of Don Quixote's madness because of the book written about him, and everyone makes an effort to devise tricks to play on him. The Duke and Duchess "arranged to play a joke on Don Quixote... in accordance with knight-errantry style...and they certainly invented many" (Cervantes 773). They unscrupulously make fools of Don Quixote and his squire, Sancho Panza, for the amusement of their court. When faced with Don Quixote's noble exploits, the Duke and Duchess are often "ready to die with laughter" (Cervantes 756). Vladimir Nabokov states that there is an "element of sportsmanship, fair play, and brotherhood found in true chivalry" (91). This element is not found in Don Quixote's dealings with the Duke and

Duchess, who are relentless in their cruelty to him. Don Quixote, however, is unaware of anything amiss in their behavior. He believes they truly feel nothing but goodwill toward him, which illustrates his naivety when it comes to understanding the world.

Sixteenth century Spain views Don Quixote as a madman. Don Quixote's ideals and the code of chivalry are not perceived as beneficial to society as a whole. Sancho Panza is the only person who accepts and believes Don Quixote's notions of chivalry. Mary Gervin asserts, "He has striven to be the ideal knight, but to no avail" (124). This is not completely true. He has striven, and he has succeeded. He demonstrates chivalric traits in his many actions and deeds, but since the world merely sees him as mad, he is not viewed as a knight. Don Quixote says, "Ever since I have become a knight-errant, I am valiant, courteous, liberal, well bred, generous, polite, bold, gently patient, and an endurer of toils, imprisonments, and enchantments" (Cervantes 498). He has nothing but good intentions, but his plans always go awry, often through no fault of his own, but rather through the corrupt intentions of the society he lives in. He proves himself to be an ideal knight, but chivalry cannot be revived in a world that does not accept it.

Works Cited

- Auden, W.H. "The Ironic Hero: Some Reflections on Don Quixote." Cervantes. Ed. Nelson, Jr., Lowry. Eaglewood Cliffs, New Jersey: Prentice Hall Inc., 1969.
- Duran, Manuel. Cervantes. Boston, MA: Twayne Publishers, 1974.
- Gervin, Mary A. Literature Criticism from 1400 to 1800. Ed. Person, Jr. James E. Detroit, MI: Gale Research Inc., 1994.
- "Medieval Code of Chivalry." 6 June 2005. 19 Nov 2007. <<http://www.castles.me.uk>>.
- Nabokov, Vladimir. Literature Criticism from 1400 to 1800. Ed. Person, Jr. James E. Detroit, MI: Gale Research Inc., 1994.



Photograph by Benjamin Heller

Malaria

-Jean Dominique Néziwar

Introduction: A case among others

7:00 PM, the sun is already down, and a very small breeze is entering through the open window. It is all quiet, dark and peaceful. Marc is sitting down at his desk, thinking about how to start his final paper. He wanted to go in the living room to hang out with his visiting cousin, but he couldn't. The paper was due the next day, and he had to write it no matter what, and for that he was supposed to be alone to concentrate. But was he really alone? Marc was so absorbed in his thoughts that he did not notice Moustica, who was drinking peacefully on his forehead. It had been a long day for Moustica. She was busy laying eggs on the pond not far away, and then had to escape from the reptiles on the walls. Now she was having a deserved serving of the most delicious blood she has tasted. Suddenly Marc felt the familiar itch on his forehead and automatically hit the area. Moustica sees the hit coming, but she is too filled to do anything about it. Her left wing is crushed and she falls on the desk. Furious, Marc raises his hand a second time and...

That is the story of the war between two species of living beings. It has been like that for centuries for many reasons. One of the main reasons for this animosity is the fear



that humans have of vectorborne diseases. In this paper, I will talk about malaria, which is of the most popular and deadly diseases of this category.

I_ History of Malaria

Malaria is believed to have been affecting the human population as early as 8000 years BC. Even if it was a problem, especially in the old world, it was not very well understood. Some texts collected from Hypocrites revealed that they were already doing research on the disease. According to them, there were three different types of malaria: quotidian (daily), tertian (alternate days) and quartan (every four day). Their observations were based on simple observations of the disease and would soon be proven false. In the year 1638, the beautiful wife of the Viceroy lay very ill. She had malaria. The recurring crisis of cold-dry, hot-dry, and hot-wet was repeating itself apparently hopelessly and to one end. The countess's husband, Don Luis Fernandez de Cabrera Bobadilla y Mendoza, fourth Count of Cinchon, consulted the court physician yet again. Not knowing what to do, the physician, in desperation, suggested the use of the northern Andean remedy, quinine, which was already being used by the natives to fight other types of diseases. Bark was procured from Loxa, 500 miles away in modern Ecuador, and the countess was cured. In her honor, the genus of tree from which quinine is extracted was named Cinchona (Henry, 1987).

This is one of the many cases of malaria in the 1600s and probably the luckiest one that led to the European adoption of the "quinine bark" as a combatant against malaria. Soon, the plant was exported in huge quantities to Europe, becoming an important economic factor. As Europeans were becoming more exposed to this disease, men started to find more efficient ways to protect themselves. One of the most notable results was around the 1800s when there was a decline of malaria in the Northern European area due to drainage and better housing screening.

The Cinchona calisaya is one of ninety varieties of red-barked Andean tree and a relative of the madder family, which also includes coffee and gardenia. Within the foul-tasting, bitter red bark of the cinchona tree is an alkaloid that prevents and treats malaria. Around the year 1820, it was identified and named quinine (Fiammetta, 2003). In the year 1880 in Algeria, the scientist Laveran discovered that the casual agent of malaria was a parasite named the plasmodium. Quite different from what everybody else was expecting, it took a while for the scientific community to accept Laveran's idea (Sheldon, 1997). This new medical knowledge replaced the old idea that malaria (from the Italian word mal'aria, bad air) was caused by the vaporous fumes arising from the swamps and stagnant waters of a particular malodorous place and that being indigenous

and place specific, it could not be imported. But how was this plasmodium being transmitted to humans? In the 1880s, the scientists already started hypothesizing that the vector for the disease was the anopheles. Then, with the work of Dr. Ronald Ross, Giovanni Batista Grassi, and other scientists, each working individually, there was an understanding that some anopheles carried malaria and that they were the main vectors that were propagating the disease in the human population. Throughout the paper, you will find more and more human efforts to understand and eradicate malaria. But before getting into further details, what exactly is malaria?

II_ Definition of Malaria

Malaria is a disease caused by the presence, in the red blood corpuscles or in the liver cells, of a unicellular parasite – a protozon – belonging to the genus *Plasmodium* (Emilio, 1969). But why do we use the word malaria?

The word malaria comes from the Italian *mal'aria*, which means “bad air,” and is of nineteenth-century origin; earlier, malaria was known as swamp fever and by various other names. The word malaria was compounded by Macculloch and first used in the U.K. in medical literature in 1827 (Henry, 1987). This name for the disease is understandable since it was believed that the disease was caused by the vaporous fumes arising from the swamps and stagnant waters of a particular malodorous place.

No one knows how or where malaria originated, but a reasonable speculation would be that the disease will appear anywhere as a result of an infected mosquito, or infected human (Henry, 1987). Since the beginning of its existence, malaria has undergone significant changes in morphology. Even today, many cases of malaria are misdiagnosed as flu, viral infection, tuberculosis, typhoid fever, meningitis, WNV, and dengue fever; true incidence is unknown (Anita, 2007).

There are three elements necessary to understand the successful continuance of malaria: first there must be the right type of mosquito, second there must be stagnant water, and last but not least, there must be humans for the disease to show (Henry, 1987).

III_ The Vector

The vector for malaria is a mosquito; the malarial type is of the family *Culicidae*, and of the genus *Anopheles*. The most common for malaria is the *Anopheles Gambiae*, but there are also the *Anopheles funestus* and others that can carry the parasite causing the disease (Sheldon, 1997). As of the present time, mosquitoes are the only known natural vectors of malaria, but contrary to what the majority of people might think, they don't

only carry malaria (Anita, 2002). In fact, they are also carriers of other deadly diseases, two of which are the west Nile virus and the dengue fever (Henry, 1987).

Anophele is the female of these species (the male feeds on vegetable juices, not on blood) and usually feeds at night, when man is generally indoors. After, and often before, she has sucked his blood and filled her stomach, she generally goes and rests on the bedroom walls for a certain time (Emilio, 1969).

It is known that after an anophele has ingested human blood containing malaria parasites, it will not be able to infect other human beings for some days. The sexual forms of the parasite must undergo, in the mosquito, a process of fertilization and development, which will result in the presence of infective forms (sporozoites) in the saliva of the mosquito. Only then will the mosquito be able to transmit the infection. Now this process needs quite a few days, according to temperature; let us say generally 12 days. During this period most anopheles will feed every 48 hours so they will come back for at least 6 nights to feed on man and risk being killed by the sprayed walls. Clearly the chances that the mosquito will be killed are high; should it survive and become infectious, again the probabilities are that it will not survive long and distribute infection for a long time. The consequence is that, if all houses have their inner walls appropriately sprayed with insecticide, transmission of malaria will be stopped and no new infections will occur (Emilio, 1969). Now that we understand the vectors let us learn a little bit more about the parasite being passed on.

IV_ The abusive parasite

The parasite causing malaria is a protozon belonging to the genus *Plasmodium*. Four species of human malaria parasites are known: *Plasmodium falciparum*, *P. vivax*, *P. malariae* and *P. Ovale* (Emilio, 1969). Of the four species, the first two (*Plasmodium falciparum*, *P. vivax*) account for more than ninety-five percent of the cases of malaria in the world. *P. malariae* has an uneven distribution and *P. ovale* is found practically only in Africa, particularly West Africa. But let us go into detail and learn more about each specific type of malaria (Emilio, 1969).

P. falciparum is the most serious and responsible for the majority of deaths. It causes microvascular sequestration and obstruction in the brain, kidney, and liver, which leads to cerebral malaria, anemia, kidney failure, hypoglycemia, disseminated intravascular coagulation (DIC), and fluid imbalance (Anita, 2007).

Plasmodium vivax and *Plasmodium ovale* malaria parasites can sequester or lie dormant in the liver for 45 days to 5 years, reenter the RBCs and cause a relapse (Anita, 2007). *Plasmodium malaria* may cause relapse after many years possibly because it lies dormant

in the RBCs of the spleen (Anita, 2007).

Those parasites are very clever in turning a species against the other. How is the disease distributed throughout the world?

V_ The geographic distribution and patterns of incidence of Malaria

As said before, the spreading of malaria depends on the presence of the right vectors, stagnant water, and humans. All of those three factors are grandly influenced by the climate, the geographic region, and other factors, like the economy of the people of the region. Let us consider the American continent as an example. According recent studies, the environmental capacity for malaria transmission is high in the equatorial, paraequatorial, and subtropical regions of the Americas. In some regions, human-made environmental changes have, without a doubt, increased environmental capacity for malaria and malaria transmission. However, human activities can work for or against disease occurrence (Elizabeth, 2002). An average of 1,000 cases of malaria is reported annually to the CDC. According to the CDC, 99% of the 1,092 cases reported in 2001 were imported from Africa, (66, 9%), the Americas (15%), and Asia (14, 5%) (Anita, 2007).

VI_ Malaria and the human body

As we saw earlier in the article, the main way of infecting humans is through a mosquito bite. Nevertheless, in very rare cases, it is also possible for the parasite to be transmitted from human to human without passage through a mosquito. Those cases include, but are not limited to, the passage of the parasite from mother to child through transfusion, organ transplantation, or through shared needles. When the parasites first enter the human body, they are at a stage of life known as sporozoites. They circulate rapidly in the bloodstream, reaching the host's liver cells. On the way, a lot of them will be killed by phagocytosis. The sporozoites that survive and make it to the liver cells will divide rapidly over the week following the injection. One sporozoite can give birth to about 30,000 daughter parasites called merozoites. The liver cells start to burst and the merozoites make their way to the red blood cells where they are going to go through a new division (not as important as the first, about 32:1). Inside the red blood cells, the parasites are protected and are not worried about being attacked by the immune system. At the end of the reproduction the new merozoites are released into the blood and they restart the same process. Up to that first cycle, the host is fine with no indication of infection. A few cycles later we have a huge invasion of parasites in the bloodstream. The immune system is alerted and white blood cells track parasites down, destroying them. After a

while the white blood cells will be able to detect the parasite's presence even if it is inside the red blood cell. The body's defensive cells also secrete chemical agents, known as cytokines, which both regulate the host's response and, in some cases, kill the parasites directly.

All of those repetitions of the parasite cycle and the body responses will cause malaria itself. The main events to consider are:

- 1) The number of red blood cells is very low. The body can no longer supply its different parts with the right amount of oxygen. The CO₂ concentration becomes very high and the blood becomes acidic. This leads to respiratory distress. The patient breathes harder to try to 'blow off' carbon dioxide to reduce the acidity.
- 2) The cytokines used by the body to fight the parasite is toxic to the host's cells, too. That means if it is used in too high concentration (which is what happens when the parasites are in abundance in the blood), the host's own cells will be damaged and a lot of them will also die.

The mature parasites usually retreat to small blood vessels in very high numbers where they are attached to the interior surface. It is not known yet why they behave that way, but their presence in the small vessels will slow blood flow, which causes a delay in the delivery of oxygen and might also block the vessels.

VII_ Ways used to protect against Malaria

The simplest ways known by most to protect ourselves against malaria are physical protection against the mosquito bites and stopping mosquitoes from multiplying. Control of standing water and support of public health vector control efforts are the most effective means of prevention. Personal protection from mosquito bites includes the use of screens on window and air conditioning units, light-colored clothing with long sleeves and pants, use of 24% N, N-diethyl-m-toluamid for those older than 1 year, avoiding the use of perfume and deodorant, using antimalarial drugs prophylactically for malaria, and remaining indoors during early morning and evening hours. Environmentally safe mosquito larvicides are available for home ponds, as are other measures to control mosquito populations (Anita, 2007). That brings us the ultimate protection that mankind has been researching against malaria: the eradication of the vectors.

VIII_ Attempts to eradicate Malaria in the past

Malaria eradication means the extermination of the malaria parasites of man in the population of a large area. It does not mean the eradication of the species of mosquitoes

that transmit malaria in that area (Emilio, 1969). The World Health Organization Expert Committee on Malaria gave, in 1956, the following definition: "Malaria eradication means the ending of the transmission of malaria and the elimination of the reservoir of infective cases, in a campaign limited in time and carried to such a degree of perfection that, when it comes to an end, there is no resumption of transmission" (Emilio, 1969). Until the Second World War, malaria control was difficult, expensive, and economically feasible only in particular circumstances. Control of mosquitoes in their aquatic stage (larval control) and insecticide spraying, developed by Italian malariologists under the name of "bonifica integrale," were the main methods employed.

The relationship between man and malaria was changed in favor of man when Mueller in 1939 in Basel, Switzerland, demonstrated that a chemical, first synthesized in 1874 by Zeidler in Germany, was a powerful insecticide which did not need to be ingested or inhaled to kill insects, but only to be touched by the insect's limbs (contact insecticide).

That chemical was the dichlorodiphenyltrichloroethane, a name which was eventually shortened to DDT. DDT is only very slightly dangerous for men and animals - unless ingested - and is relatively cheap. The way the man wanted to eradicate malaria at this time was quite an unfair dream for the mosquitoes. But the failure of our plans proved to us that we're not handling the problem the right way. The Greece eradication program is a great example.

The Greece example:

In 1951 it happened that, owing to the difficulties in procuring sufficient amounts of DDT, Greece was not able to spray all the houses that it had been spraying annually since 1946. It was then decided, apparently on the technical advice of Livadas, to withhold spraying in two large territories, the island of Crete and the Peloponnese, and to continue it in the remaining malarious territories. In Crete and the Peloponnese, as well as in other areas, "according to all evidence available (transmission) had been interrupted... by the end of 1949." A system of "epidemiological surveillance" was set up where spraying was withheld in order to find malaria cases and take appropriate measures. It proved that the abolition of the house-spray program in 1,600 villages, the average number usually sprayed in Crete and the Peloponnese, did in no way affect the existing balance in those areas from the standpoint of malaria. In other words, no indigenous case of malaria occurred on the island, while a few hundred only occurred in the Peloponnese. The findings taught us the lesson that if transmission had been fully stopped for a few years - as in Crete - spraying could be interrupted without the return of malaria (Henry, 1987).

IX_ Current coping with malaria

Nowadays, there are also various chemical ways to fight against the spread of malaria (insecticides, body lotion containing insecticides, etc). Most of them target the vector, repelling or simply killing it before it can pass on the parasite. Of all of the chemical defenses I found, the current dialogue on whether or not to use DDT in houses is very interesting. It is known to all why the use of DDT to eradicate malaria was stopped. DDT was found to be toxic, and it was destroying the environment. In the book titled *The Contextual Determinants of Malaria*, written by a large group of scientists and professors, one person had an interesting argument in favor of DDT. Professor Donald R. Roberts thinks that DDT is the best insecticide to fight the anopheles. He did a comparison between nicotine and DDT. Here is what he had to say: "In one study, 24 human volunteers consumed 35 milligrams of DDT daily for 21.5 months without harm; 8 were clinically monitored for an additional 25.5 months and 16 for an additional five years, with no adverse health impact. As a comparison, consider that nicotine is 170 times more toxic to mammals than is DDT. Nicotine is even more toxic to insects; the nicotine in a puff of cigarette smoke can be used in the field to almost instantaneously kill live mosquitoes in small, enclosed cages. DDT would have no effect under similar conditions" (Elizabeth, 2002).

Conclusion

In science the possibilities are infinite, but answers to questions depend on the scientist and his or her way of using knowledge. What if a creature bigger and more difficult to destroy becomes vector for a disease worse than malaria? Will we destroy it also? As Watson, who found the structure of DNA, said, "Most scientists lack imagination." When dealing with diseases, we must follow the example of Paul W. Ewald and Watson and think out of the box.

"And as the second hand was coming to her with full strength, Moustica, extended her non broken wing in a sign of defiance. "I do not want to die yet," she screamed in a language that was just noise to Marc's ears. Few centimeters were between her and Marc's cruel palm. Then, looking through the window, she sees the pond where she laid hundreds of eggs minutes earlier and smiles...BAWW!!!!!"

The END

Bibliography

1. Allan Schapira (2006). DDT: a polluted debate in malaria control. Published on-line on December 7, 2006.
2. Anita Hunter, Susan Denman-Vitale, Laurel Garzon, Pat Jackson Allen, Lorne Schumann (2007). GLOBAL INFECTIONS: Recognition, Management, and Prevention. The Nurse Practitioner, February 2007.
3. Elizabeth A. Casman and Dowlatabadi Hadi (2002). The contextual Determinants of Malaria. Washington : Resources for the future.
4. Emilio Pampana (1969). A textbook of Malaria Eradication. New York: Oxford University Press.
5. Fiammetta Rocco (2003). The Miraculous Fever-Tree. New York Harper-Collins Publishers Inc.
6. Geoffrey Marks and Beatty K. William (1976). Epidemics. New York: Charles Scribner's Sons.
7. Gordon Harrison (1978). Mosquitoes Malaria and Man: A history of the Hostilities since 1880. New York
8. Henry Hobhouse (1987). Seeds of Change. New York: Harper & Row, Publisher Inc.
9. Kevin Marsh (2002). Malaria: and the human body. Part 1: danger cycle. http://malaria.wellcome.ac.uk/doc_WTD023879.html
10. Senthil Nathan, Sengottayan (2007). The use of *Eucalyptus tereticornis* Sm. (Myrtaceae) oil (leaf extract) as a natural larvicidal agent against the malaria vector *Anopheles stephensi* Liston (Diptera: Culicidae). Bioresource Technology; July 2006.
11. Sheldon Watts (1997). Epidemics and History, (disease, Power and Imperialism). New Haven : Yale University Press.

可謂爲上米也。一曰發氣。陳陳逼人，時則爲米氣；駢肩雜處，腥臊汗垢，時則爲腐氣；倉腐寄頓，惡氣雜出，時則爲穢氣。疊是數氣，當之者鮮不以孱弱，仇問，於茲二年矣，幸而無恙，是殆有養致然爾。然亦安？孟子曰：吾善養吾浩然之氣。」彼氣有七，吾氣有一，以一敵七，兄浩然者，乃天地之正氣也，作正氣歌一首。

可正氣，雜然賦流形。下則爲河岳，上則爲日星。於人曰浩然，沛乎塞蒼冥。長良椎，含和吐明庭。時窮節乃見，一一垂丹青。在齊太史簡，在晉書東帽，在漢蘇武節。爲嚴將軍頭，爲嵇侍中血。爲張睢陽齒，爲顏延之望賊笏，逆豎頭破裂。是氣所磅礴，凜烈萬古存。當其貫日月，耀精光。預以立，天柱賴以尊。三綱實繫命，道義爲之貴。陳房閻鬼火，百世自嬰司。一邑，傳車送窮北。鼎鑊甘如飴，求之不可得。如此再寒暑，百沴自且如。爲我安樂國，陰陽不能賊。此耿耿，風檐展書讀，古道照我心。



Graphics by Benjamin Heller

Individual Verses Community

Maria Rosenberg

The communal style of writing in modern Chinese short fiction is often a contrast to the individualistic style demonstrated in popular literature throughout the world. The storyline of Chinese literature involves problems with the whole society rather than just one protagonist. Paralleling this, the antagonist is usually not one "evil doer" or group like so many commonly known fiction stories, but nature is the fighting force, whether it is the environment itself or the human nature of the characters. As a communist society, the Chinese also show in their literature the effect, or lack thereof, that an individual can have on the rest of the population. Two stories of contemporary Chinese literature that exemplify these ideas are "Benediction" by Lu Hsun, and "The Smashing of the Dragon King" by Wang T'ieh. The current Republican Period of Chinese Literature has begun to borrow ideas from the West, but still maintains a significant amount of its own history's traditions.

In Lu Hsun's "Benediction," a woman named Hsiang-lin Sao is introduced as a pitiful beggar who is barely remembered by her old employers. Although this woman is the focus of the story, she represents the insignificance of the individual. She is nothing more to these people than a good worker, "quick and diligent, more so in fact than a man" (Hsun 309). This woman is bought and traded like a simple object, only meant for the betterment of her host family. None of them seem to care for her as a person. When she is taken from them abruptly because she is a runaway, Fourth Aunt and Uncle become more upset that the trader, Old Woman Wei, had recommended an illegal worker so highly. The actions and reactions of these cold characters show how the story is "characteristic in its scrupulously unsentimental clarity of observation of the world of peasant misery" (Birch 301). Even when Hsiang-lin Sao's tragic personal story is explained to the family, everyone becomes more annoyed by it than sympathetic. The repetition of her awful story about the death of her child is then contributed to her declining usefulness as a worker. It is explained that "she was no longer the same woman" and that "one could tell by Fourth Aunt's tone of voice that she was already dissatisfied, and with Fourth Uncle it was the same" (315). After a steady decline of contentment in her position, Hsiang-lin Sao is sent away, no longer useful to any of them.

"Benediction" is reminiscent of a story called "A Very Old Man with Enormous

Wings" by the Colombian writer Gabriel Garcia Marquez. In it, a fallen angel, dirty and weak, brings good fortune to the home of Pelayo and his family. Their sick child becomes healthy, they begin collecting money from the public to see the caged angel in their backyard, and they live comfortably thanks to their mistreated guest. Much like Hsiang-lin Sao, the angel brings only affluence to the family. Yet, there is no appreciation for all they bring to their hosts. In her essay on several of Garcia Marquez's works, Susan de Carvalho explains that "this same image of a hostile society reappears throughout Garcia Marquez's fiction" (149).

The greed of Pelayo and his wife is the driving force, however, to their continued use of the angel. In "Benediction," Fourth Aunt is simply looking for a worker that will be of most value to her in maintaining the family's everyday life. Fourth Aunt and Uncle also drive their worker out, since she is no longer useful to them after the second time she returns. The angel, though, is just forgotten after his hosts had gotten what they wanted and no longer needed him, so he flies away without any of them caring.

The eleven part sequence, "The Smashing of the Dragon King," by Wang T'ieh, displays the pain and mistakes of one community and what is done to change this. The ground is dry and the rain is nowhere in sight. When times are hard for the crops in Mah's Bend, the people become desperate. After much praying and many sacrifices, the people look to Mr. Zodiac Mah, who is one of the only educated men in the village and who seems to be able to predict the fate of their land. When he proclaims that it is the worship of the Dragon King that will save their land, the people put everything they have into his word. Putting all of their money and livelihood into Mr. Zodiac Mah and his wife, the Sorceress Inky-nob, the people are left with no food or rain, while Mr. Zodiac Mah and Inky-nob live very well. Eventually, a fight breaks out among them over the clay Dragon King and the brawl leaves the townspeople destroyed and alone, Zodiac Mah having abandoned them.

The government steps in and sets up a Farmer's Relief Council to help the small village. Liu, the worker sent to them from the district, helps the village survive through "self-help through production" (T'ieh 428). Their communal way of working has every person, poor or moderate, doing their part to water the seedlings and attempting to salvage what is left of their town. In the end, it is this way of thinking rather than hoping for a false idol that carries the people of Mah's Bend through. It is the individual, Mr. Zodiac Mah, who ended up suffering after all. Uncle Boils best describes it when he says, "When the prince does wrong his subjects share his guilt. Zodiac Mah has been a very unfortunate man" (428). The people suffered when Zodiac Mah tricked them, and so he suffers now.

A similar theme of following false and pointless traditions can be found in an

American short story, Shirley Jackson's "The Lottery." In it, a town holds a yearly ritual in which one person is chosen at random to be stoned to maintain the ordered community they have created. There is no questioning as to the significance or sense of this tradition, but it is what keeps the people doing their jobs well all year long, in hopes that they will not be chosen. This reflects the accepted following of the Dragon King in T'ieh's story, with some differences. In "The Smashing of the Dragon King," the entire community is a victim to the drought and to Zodiac Mah's bogus premonitions. In Jackson's story, it is a single family and a single woman who are the main victims, and only then questioners of their traditions.

The antagonists in each story are rather different as well. One village is a victim to their old values and those who enforce them, such as Mr. Summers who "had the time and energy to devote to civic activities" (Jackson 713). In contrast, the opposing force to the villagers in the Chinese short story is mainly the lack of rain, a natural force that threatens their very lives. One comparison between the two antagonists that cannot be ignored, however, is the existence of Mr. Zodiac Mah. His control over the thoughts and beliefs of the people, and his increased profit from his tales, are reminiscent of Mr. Summers. Writer Peter Kosenko asks the question, "What relationship is there between [Mr. Summers'] interests as the town's wealthiest businessman and his officiating the lottery?" (226). The same question could be put to Mr. Zodiac Mah half way across the world.

The significance of the individual is in contrast between "The Smashing of the Dragon King" and "The Lottery." At first glance, it seems that both are only concerned with the people as a community. Everyone in Mah's Bend is struggling and praying and starving, waiting for the rain to feed their seedlings, who are "like babies robbed of their milk" (T'ieh 403). Equally, the people of the quaint village performing the lottery gather together for this annual custom, believing that it is what keeps the town functioning properly. As journalist Geoffrey Wolff explains, though, "a sense of community is won at a price," that price being one unlucky person. It is not until one family, the Hutchinsons, are chosen that any of them care for the individual that wins the lottery. Tessie particularly becomes very concerned for herself as an individual when she is chosen for the stoning. Her last words, "It isn't fair, it isn't right," are a fatal distinction between what she thought to be perfectly reasonable before she was chosen (Jackson 718). Writer Carol Cleveland explains, "Tessie has, like the rest of the town, steadfastly refused to imagine the lottery from the victim's point of view until forced to" (229). Before that, like the people of Mah's Bend, she was just part of the community, going along with everyone else.

The Chinese short fiction of the twentieth century certainly has many obvious similarities and differences to famous works from other parts of the world. While the

benefit of the community is the main concern in both "Benediction" and "The Smashing of the Dragon King," it is the woes of one individual that are the focus of stories outside of China, such as "A Very Old Man with Enormous Wings" and "The Lottery." Enemies in Chinese literature are not usually a greedy individual or an evil government, but forces uncontrollable, like necessities of the community or natural occurrences. Any sympathies for a single person in need are not as evident as what is best for the whole of the population. It is differences like these that make each nation unique in their literature and ideas. Without these differences, nations of the world would never learn from each other.

Carvalho, Susan de. "Origins of Social Pessimism in Garcia Marquez: 'The Night of the Curlews.'" *Studies in Short Fiction* 28 Summer 1991: 331-38. Rpt. in *Contemporary Literary Criticism*. Ed. Janet Witlec. Vol. 170. Michigan: The Gale Group, Inc, 2003. 147.

Cleveland, Carol. "Shirley Jackson." *And Then There Were Nine: More Women of Mystery*. Bowling Green State University Popular Press 1985: 199-219. Rpt. in *Contemporary Literary Criticism*. Ed. Janet Witlec. Vol. 60. Michigan: The Gale Group, Inc, 2003. 229.

Garcia Marquez, Gabriel. "A Very Old Man with Enormous Wings." *Fiction 100: An Anthology of Short Fiction*. Ed. James H. Pickering. Upper Saddle River: Pearson Prentice Hall, 2007. 553-556.

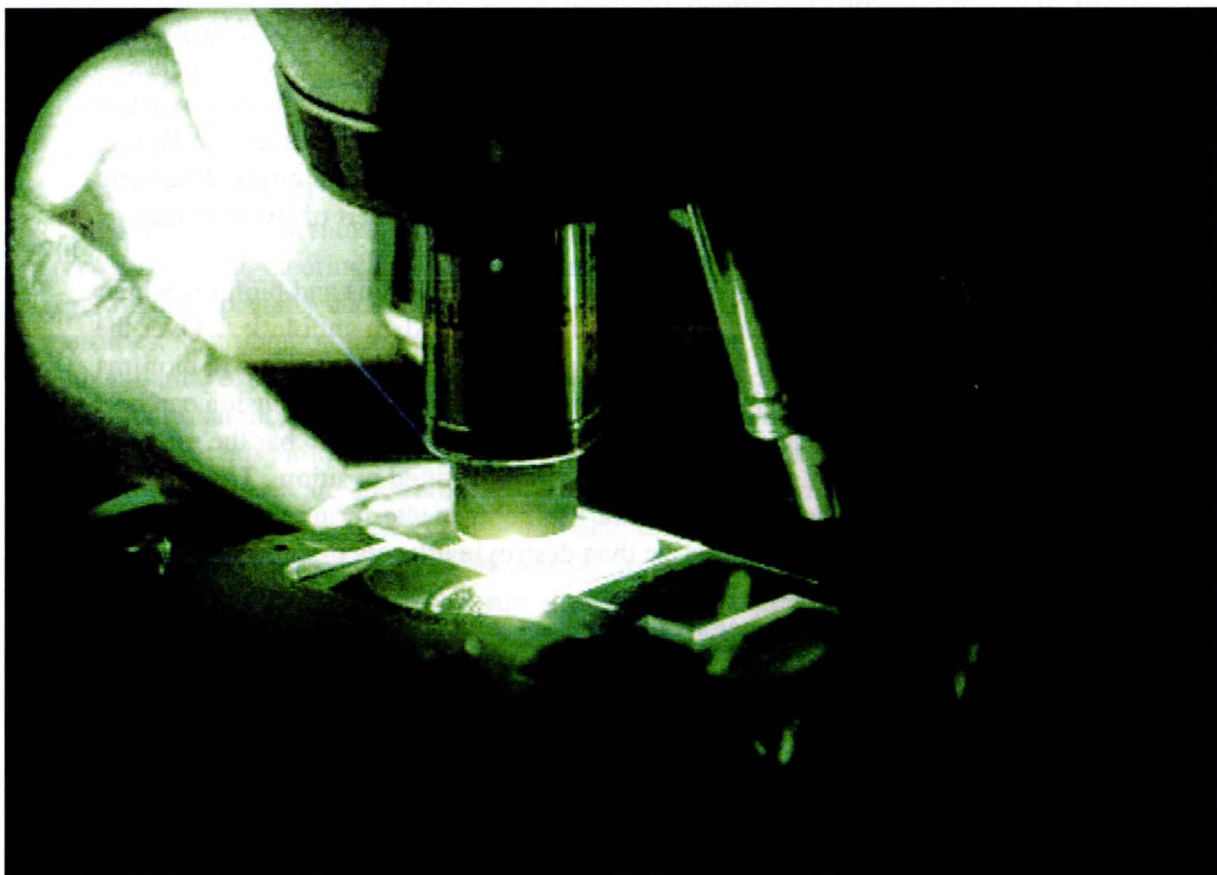
Hsun, Lu. "Benediction." *Anthology of Chinese Literature*. Ed. Cyril Birch. New York: Grove Press, 1972. 303-320.

Jackson, Shirley. "The Lottery." *Fiction 100: An Anthology of Short Fiction*. Ed. James H. Pickering. Upper Saddle River: Pearson Prentice Hall, 2007. 713-718.

Kosenko, Peter. "A Marxist/Feminist Reading of Shirley Jackson's 'The Lottery.'" *The New Orleans Review* Spring 1985: 27-32. Rpt. in *Contemporary Literary Criticism*. Ed. Janet Witlec. Vol. 60. Michigan: The Gale Group, Inc, 2003. 226.

T'ieh, Wang. "The Smashing of the Dragon King." *Anthology of Chinese Literature*. Ed. Cyril Birch. New York: Grove Press, 1972. 402-429.

Wolff, Geoffrey. "Shirley Jackson's 'Magic Style.'" *The New Leader* 9 September 1968: 18-19. Rpt. in *Contemporary Literary Criticism*. Ed. Janet Witlec. Vol. 60. Michigan: The Gale Group, Inc, 2003. 214.



Microbiology

—Rhandi Thame

A biofilm is a complex collection of microorganisms that are marked by the excretion of a protective and adhesive matrix. They are also often characterized by surface attachment, structural heterogeneity, genetic diversity, complex communication reactions and an extra-cellular matrix that consists of a polymeric substance (wikipedia). Biofilms, which are products of bacterial adherence, are structured communities of bacteria that self-produce an exopolysaccharide matrix and attach to an inert or living surface (Bonaventura, Spedicato, Piccolomini, 2003).

Microbes that cause many infections organize themselves into films and biofilms which can be nearly impossible to eradicate with the use of most modern antibiotics. Over the past few years medical researchers have discovered that the microorganisms in biofilms depend greatly on their ability to signal one another. Therefore, the conclusion can be drawn that drugs able to interfere with this transmission may be able to bar the microbes from establishing infections or greatly reduce their well fortified position. The fight against biofilms can be considered an actual war; sometimes interfering with an enemy's ability to communicate is far more effective than destroying the enemy's factories and supplies (Costerton, Stewart, 2007).

The formation of a biofilm begins with the attachment of a free floating micro-organism to a surface. The first colonists adhere to the surface with reversible van der Waals forces that are initially weak, and if the colonists are not immediately separated from the surface to which they adhere, they can anchor themselves more permanently using cell adhesion molecules, such as pili. The first colonists facilitate the arrival of other cells by providing more diverse methods of adhesion and also by beginning to build the matrix that holds the entire biofilm together. Some of the species are not able to attach to a surface on their own but are often able to anchor themselves to the matrix that was formed or directly to earlier colonists. It is during colonization that the cells are able to communicate via quorum sensing. Once the process of colonization has begun, the biofilm grows through a combination of cell division and recruitment. The final stage of biofilm formation, which is known as development, is the stage in which the biofilm is established and may only change in shape or size. This development of biofilms is



what allows the cells to become more and more antibiotic-resistant. The mature, fully functioning biofilm is like a tissue; it is a complex metabolically cooperative community made up of different species each living in a customized micro-niche (wikipedia).

Biofilm forms when bacteria adhere to surfaces in aqueous environments and begin to excrete a slimy, glue-like substance that can anchor them to all kinds of material, such as metals, plastics, soil particles, medical implant materials, and tissue. A biofilm can be formed by a single bacterial species, but more often biofilms consist of many species of bacteria, as well as fungi, algae, protozoa, debris and corrosion products. Essentially, biofilm may form on any surface exposed to bacteria and some amount of water. Once anchored to a surface, biofilm microorganisms carry out a variety of detrimental or beneficial reactions by human standards, depending on the surrounding environmental conditions.

The ubiquity and significance of the biofilm phenomenon is confirmed by the ongoing, long term industrial interest in the work at the Montana State University Center for Biofilm Engineering, whose associates represent a wide range of industries, including petroleum, specialty chemicals, health, household products, drinking water, mining, and utilities. Microbial biofilms on surfaces cost the nation billions of dollars yearly in equipment damage, product contamination, energy losses and medical infections. Conventional methods of killing bacteria, such as antibiotics and disinfectant, are often ineffective with biofilm bacteria. The huge doses of antimicrobials required to rid systems of biofilm bacteria are environmentally undesirable and perhaps not allowed by environmental regulations, as well as medically impractical since what it would take to kill the biofilm bacteria would also kill the patient. So, new strategies based on a better understanding of how bacteria attach, grow and detach are urgently needed by many industries. Conversely, microbial processes on surfaces also offer opportunities for positive industrial and environmental effects, such as bioremediating hazardous waste sites, biofiltering industrial water, and forming biobarriers to protect soil and groundwater from contamination.

Biofilms avidly colonize many household surfaces, including toilets, sinks, countertops, and cutting boards in the kitchen and bath. Poor disinfection practices and ineffective cleaning products may increase the incidents of illnesses associated with pathogenic organisms in the household environment (www.cs.montana.edu).

Biofilms are also present on the teeth of most animals as dental plaque. This plaque may become responsible for tooth decay and gum disease. Dental plaque is the material that adheres to the teeth and consists of bacterial cells, mainly *Streptococcus mutans* and *Streptococcus sanguis*, salivary products and bacterial extra cellular products. Plaque is a biofilm that is located on the surface of the teeth. This accumulation of microorganisms

subjects the teeth and gingival tissues to high concentrations of bacterial metabolites, which results in dental disease.

Biofilms have been found to be involved in a wide variety of microbial infections in the body. By one estimate, it is thought that biofilms account for nearly eighty percent of all infections. Infectious processes in which biofilms have been implicated include common problems such as urinary tract infections, catheter infections, middle-ear infections, the formation of dental plaque, gingivitis, coating contact lenses, and less common but more lethal processes such as endocarditis, infections in cystic fibrosis, and infections of permanent indwelling devices such as joint prostheses and heart valves.

Biofilms are implicated in otitis media, the most common acute ear infection in children in the United States. Other diseases in which biofilms play a role include bacterial endocarditis (infection of the inner surface of the heart and its valves), cystic fibrosis (a chronic disorder resulting in increased susceptibility to serious lung infection), and Legionnaire's disease (an acute respiratory infection resulting from the aspiration of clumps of *Legionella* biofilms detached from air and water heating/cooling and distribution systems).

Many common bacterial pathogens exist in animals as biofilms. Some of these include mastitis, pneumonia, lymphadenitis, liver abscess and wound infections. Infections that involve a biofilm mode of growth are generally difficult to treat. Biofilms may also be responsible for a wide variety of nosocomial (hospital-acquired) infections. Sources of biofilm-related infections can include the surfaces of catheters, medical implants, wound dressings, or other types of medical devices.

It has recently been shown that biofilms are present on the removed tissue of eighty percent of the patients undergoing surgery for chronic sinusitis. The patients with biofilms were shown to have been denuded of cilia and goblet cells, unlike the controls without biofilms who had normal cilia and goblet cell morphology. Biofilms were also found on samples from two of the ten healthy controls mentioned. The species of the bacteria from the cultures did not correspond to the bacteria species in the biofilm on the respective patient's tissue, so basically the cultures were negative even though the bacteria were present (Olson, Ceri, Morck, Read, 2002).

Biofilms can be found on rocks and pebbles at the bottom of most streams or rivers and often form on the surface of stagnant pools of water. Biofilms are important components of food chains in rivers and streams and are grazed by the aquatic invertebrates upon which many fish feed.

In industrial environments, biofilms can develop on the interior of pipes, which can lead to clogging and corrosion. Some biofilms cause serious trouble when they establish colonies inside metal piping and hasten corrosion, a process that accounts for half

of the forced outages at steam driven electric power plants. Companies in the industry spend millions of dollars yearly combating problems such as these (Costerton & Stewart, 2007).

The safety of drinking water supplies can be greatly compromised by biofilms, which often grow inside distribution pipes. Researchers at Stanford University have shown that, by forming itself into a biofilm, the organism that is responsible for the outbreak of cholera, *Vibrio cholerae*, can survive chlorine concentrations ten to twenty times higher than are normally used to treat drinking water. In 1996 biofilms repeatedly caused the water supply in Washington D.C to violate federal standards for bacterial contamination (Costerton & Stewart, 2007).

Biofilms have been used successfully in water and wastewater treatment for well over a century. English engineers developed the first sand filter treatment methods for both water and wastewater treatment in the 1860s. In such filtration systems the filter medium, sand, presents surfaces to which microbes that feed on the organic material in the water being treated can attach. The formation of a beneficial biofilm that eats the “bad” stuff in the water effectively filters it. Of course, we don’t want the microorganisms in the biofilm to get into the filtered water or for chunks of biofilm to detach from the colony and make it through the system. Ideally, the biofilm stays attached to the filtration system and can be cleaned when the system is flushed. Scientists and water treatment engineers have discovered that drinking water and wastewater that have been processed with a biofilm system in a treatment plant are more “biologically stable” than water filtered by other types of treatment systems. This just means that there is likely to be less microorganism contamination in water that has passed through a biofilm-based filter than there is in water that has passed through some alternative treatment system. This implies that biofilm treated water typically has lower disinfectant demand and disinfection by-product formation like the smell and taste of chlorine potential than water treated in other ways if the water prior to treatment is high in the kind of nutrients the biofilm craves (www.cs.montana.edu).

Many sewage treatment plants include a treatment stage in which water waste passes over biofilms grown on filters that extract and digest organic compounds. In such biofilms, bacteria are mainly responsible for the removal of organic matter while protozoa and rotifers are mainly responsible for the removal of suspended solids, which include pathogens and other microorganisms. Slow sand filters rely on biofilm development in the same way to filter surface water from lake, spring or river sources for drinking purposes.

Bioremediation is a term that refers to the engineering of a biofilm that can be introduced into the area of an oil or gasoline spill to help clean up the mess with a natural, non-harmful method. Certain bacteria will eat oil and gasoline. Oil is produced over

many years by decaying vegetation, therefore making it an organic compound. Biofilms can help to eliminate petroleum oil from contaminated oceans or marine systems. The oil is eliminated by the hydrocarbon-degrading activities of microbial communities, in particularly by a recently discovered group of specialists (wikipedia).

The use of biofilms has also emerged as a technology of choice for cleaning up soils that may have been contaminated with hazardous materials. Bioremediation results in the reduction of both contaminant concentrations and mass for many surface contaminants like petroleum hydrocarbons and chlorinated organics.

Mining for metals, among them gold, silver, copper and so on, is a hard job and the desired metal is not commonly found in its pure form. When found, metals are generally hard to see with the naked eye, mixed in the ground with dirt, rocks, and other ground debris. The extraction process, when done with chemicals, is called "leaching," and this process is very harmful to the environment. New methods have been found and today approximately ten to twenty percent of copper mined in the United States is extracted from low grade ore with the assistance of biofilms. Mining companies are making a considerable investment to extend this process to the extraction of other precious metals.

Biofilms form when bacteria attach themselves to surfaces in aqueous environments and secrete a slimy substance that can anchor itself themselves to various substances. You may not be aware of it, but you encounter biofilms in your daily life: the plaque on your teeth, the substance that clogs your drains, among many other things, are all examples of biofilms. Biofilms are all around us, on us and in us. It can therefore be concluded that not all biofilms are harmful and many play an important role in the ecology of the earth and the sustainability of life in general.

Reference Page

Biofilm. Retrieved October 13, 2007 from
www.wikipedia.com

Bonaventura Giovanni, Spedicato Ilaria, Piccolomini Raffaele. (2003). Biofilm Formation by *Stenotrophomonas maltophilia*. [Electronic version]. American Society for Microbiology, 48 (1): 151-160.

Costerton JW, Stewart Phillip. (2007). Battling Biofilms. Scientific America, pages 2-9. How do Biofilms impact our world. Retrieved October 13, 2007, from
<http://www.cs.montana.edu/ross/personal/intro-biofilms-s3.htm>

Olson Merle, Ceri Howard, Morck Douglas, Read Andre. (2002). Biofilm bacteria: formation and comparative susceptibility to antibiotics. [Electronic version]. Canadian Journal of Veterinary Research, 66(2): 86-92.




Painting & Graphics by- Benjamin Heller

A Way to Believe

-Stephanie Rowan

Robert Fulghum once said in his book, *The Storyteller's Creed*, "I believe that imagination is stronger than knowledge - myth is more potent than history - dreams are more powerful than facts - hope always triumphs over experience - laughter is the cure for grief - love is stronger than death."

What is belief? Is it an opinion? Or is it the ultimate truth? Regardless of its true meaning, belief is what one makes it. However one chooses to live, life is created to give reason to something: the endless human suffering that exists in the confusion of our own meaning. Could it be meaningless? It depends on the truth that one adopts. And what is superstition? Is it a part of belief? Or is it a part of the supernatural world that allows one to come to a realization that there is more to this life? Whatever it is, it is one important factor of many Asian civilizations. In several different time periods of Chinese history, superstition and belief are seen as main aspects of a ritualistic life-style. How people went on with their days and how they came to believe in luck shaped them as human beings striving to fit in a society. During the Ming Dynasty, people's perceptions of their surroundings turned into story telling. Superstition became a big part of communication as family members told stories to their bloodlines that eventually ended up in writing. Ghosts became a big part of the way people lived their lives. Believing in the supernatural somehow may have given hope to those who didn't understand what death was. Instead of it being an obsession, death became almost a ritual to the Chinese. The Ch'ing Dynasty in mid 15th century China was defined as an era filled with supernatural beliefs. Much of the literature of the time was solely based on the interaction with ghosts or even myths of mystical creatures and heroes. Not only were they interested in supernatural phenomena, but self-image and moral duties were also regarded as highly important in society. Society in itself was also a rigorous audience to those who were a part of it. It demanded much of an individual. During the Republican Period in China, individuals came upon that belief of fate or lack thereof. This fate may have had something to do with the ritual of satisfying family ancestry. If families were devoted to the ancient spirits of their family, their chance at "luck" may be greater than those who ignore their family roots. Some writers at the time also expressed their concerns with the path their lives were tak



ing and began questioning when the big event would come that would change their lives completely. Some of this mentality can be seen through history's ancient philosophers. Confucius, for example, was the one who came up with the principle for self-cultivation and moral duty. "For more than two millennia, traditional Chinese moral life and thought have been much preoccupied with li (rites, ritual propriety) as a means for the realization of the Confucian ideal of tao (way) or human excellence (shan)" (The Review of Metaphysics 471). In other words, Confucius claimed that people should be improving themselves all the time by the act of rituals. Even if these rituals have to do with superstition, magic, myths, death and even moral ethics, people should constantly want to be successful in the act of improving their lives. Since literature is a reaction to society, many written pieces of different time periods in Chinese history have presented issues about beliefs that aided the people in finding their paths or have made them suffer through the lack of belief.

Social oppression was also a gateway into the mystic powers of belief. When society suffers greatly, their initial action is to ask their religious practice for help (whether it is from family ancestry or from a type of god). Examples of poverty versus wealth are seen in "A Record of the Land of the Blessed." It is a story about a man, Yuan Tzu-shih, who lends money to his friend Miao. Years pass and war affects Tzu-shih, making him lose everything he ever had. When he goes to ask for the money he lent Miao, who has become wealthy due to his position in the Army ranks, he does not help poor Tzu-shih. Months go by and still no help from an old friend. Filled with anger, Tzu-shih goes to Miao's house with a knife and following him is "an extraordinary mob of dozens of outlandish demons, holding knives and gouges." (Yu 42) By using his impoverished anger, he has been surrounded by evil demons. Since he does not know the realm of religion and the help he could attain from spirits, he allows these demons to take over his mind and soul. In the end, he does not kill Miao but instead, ends up in a realm of magic, the "Land of the Blessed," where the truth about his past and his future are revealed to him. Eventually Miao gets what he deserves and Tzu-shih finds happiness once again. The story also has a lot to do with belief in "what comes around, goes around," a Buddhist way of thinking called Karma. The poor man eventually gets what he wants and the rich man who could not help a friend eventually gets decapitated. Although it has superstitious elements, the basic theme behind the story is that of morality. Confucius once said "Ren (humanity or benevolence) is the leading principle for self-cultivation. To be ren is to love others, though one should still differentiate in the degree of love among different social relationships. In other words, one should never do to others what is undesirable to oneself" (Confucius 3). How people lead their lives and their kindness for others defines them as human. Those who are cruel and unfair to others eventually pay for their wrong

doings. Miao paid in the end by not helping his friend. Tzu-shih gained spiritual guidance as well as a wealthier way of life due to his kindness.

The Ch'ing Dynasty was a time period filled with superstition and ghost stories. A particular author, Yuan-Mei, who wrote "Three Ghost Stories," includes much of that ghostly characteristic of Ch'ing literature. He writes three stories where different characters see ghosts at separate occasions. The first is of Mr. Yeh's experience with the ghost of a certain Wang. He meets Wang in the middle of the road to visit an old friend. During his journey he sees the evil spirit of Wang manifest itself into a type of monster and kill someone. Ironically, he later finds out that Wang is alive and has not left his home at all since Mr. Yeh began his journey. The second story is about the narrator's brother and his encounter with green ghosts in his hotel room. The third story is about a ghost who wants to get even with an old friend. The ghost chooses a man named Li to help him find the man and seek vengeance. The three stories are about apparitions or entities that have come out to communicate with an individual. Kia Aarnio, in her essay, *The Origin of Superstition, Magical Thinking, and Paranormal Beliefs*, claimed that "the majority of people accept as a given that an unseen world of paranormal powers exists, and all that remains is for us to discover the details of its workings. Superstition and magical thinking are the core cognitions that drive belief in the paranormal" (Aarnio 58). These people that witnessed a ghost in different occasions were more prone to believing in the paranormal as Aarnio commented. Many may state that seeing is believing, and if one believes in the power of spirits, they have a greater chance of experiencing it than someone who does not.

The Republican period was like any other period in a way that superstition survived the test of time and was still extremely present in the latter centuries. One of the struggles that people go through is to obtain luck in their lives. The story "Benediction" is about the life of Hsiang-lin Sao, a young woman aged by the harshness of time. The narrator describes her life as it involves his own family. Hsiang-lin Sao came to Lu Ssu Lao-yeh's family in search for work after becoming a widow. The story that lies behind her is one of sadness. She is surrounded by death from her former husband and when his mother comes looking for Hsiang-lin, she tries running away from another married life. Her mother in law marries her off for money and she leaves the Lu Ssu Lao's family to live in the mountains. There, she bears a son who is killed by a wolf and her new husband dies from a fever. This type of "bad luck" is shunned upon in the Chinese culture. When she comes back to find work at Lu Ssu Lao's household, she is taken in but her actions are watched closely. She is not allowed to touch anything that is used in any ancestral ceremonies, such as food, ornaments, candles, etc. If she were to touch something of her master's family, the family itself may get her "bad luck" and the ancestors would severely

punish them. People did not like being around dark entities because it would make their ancestors angry, and their sole luck and wealth came from the satisfaction of that side of the family. Since she was a poor maid who did not give "praise" to her family spirits, she found herself impoverished. After trying to reconcile with her own ancestors, a failed attempt condemned her to a beggar's life. The Lu Ssu Lao-yeh's family continued to live out their New Years for years to come while Hsiang-lin sat in a corner contemplating her reunion with her ancestors in hell. "Belief in fate may be closely connected to divination, since divination is based on the premise that fate can be controlled, or at least influenced, by conscious entities available to human contact" (Raphals 537). Since the Chinese believe in fate having to do with ancestry, Hsain-lin suffered because she did not help her ancestors; therefore, her fate was sealed from the beginning. Even with her attempt to try to reconcile with them, it was useless. Lu Ssu Lao-yeh's family praised their ancestors and believed that by doing so they would have better luck.

The Chinese beliefs, to others, may appear to be a silly lot of superstition that somehow holds a culture together through the use of spiritual manifestations and ancestral guidance. Jean DeBernardi touches this subject of judgment of Western thought in his work, "Space and Time in Chinese Religious Cultures." He says that "Chinese religious culture celebrates material pleasures and worldly aspirations in a way that appears to horrify Western students of religion" (252). Even if they do celebrate material pleasures occasionally, they also celebrate the union of life and death. Written works and stories are evidence of struggle as well as proof of spiritual communication. Through the beliefs that they have created in past centuries, the Chinese have been able to survive the hardships of time and society.

Works Cited

- Aarnio, Kia. Marjaana Lindeman. "The Origin of Superstition, Magical Thinking, and Paranormal Beliefs: An Integrative Model." *Skeptic*. 13.1 (2007): 58-66
- Confucius. *Confucius*. Salem Press, Inc., 1994.
- DeBernardi, Jean. "Space and Time in Chinese Religious Culture." *History of Religions* 31.3 (Feb., 1992): 247-259
- Hsun, Le. "Benediction" *Anthology of Chinese Literature: Volume 2: from the 14th century to the present day*. Ed. Cyril Birch. New York: Grove Weidenfeld, 1972. 303-320
- Mei, Yuan. "Three Ghost Stories." *Anthology of Chinese Literature: Volume 2: from the 14th century to the present day*. Ed. Cyril Birch. New York: Grove Weidenfeld, 1972. 181-18
- Raphals, Lisa. "Fate, fortune, and luck in Chinese and Greek: a comparative semantic history." *Philosophy East and West*. 53.4 (Oct 2003): 537-575
- "The Ethical and the religious dimensions of li (rites). *The Review of Metaphysics*. 55.3 (March 2002): 479-528
- Yu, Ch'u. "A Record for the Land of the Blessed." *Anthology of Chinese Literature: Volume 2: from the 14th century to the present day*. Ed. Cyril Birch. New York: Grove Weidenfeld, 1972. 40-45



Graphics by Benjamin Heller

Edna Pontellier's Lack of Self in Kate Chopin's "The Awakening"

-Jana Fuson

Edna Pontellier from Kate Chopin's *The Awakening* epitomizes the term identity crisis. She evolves from a content woman who experiences "a vague anguish" (9) to a restless one who begins "to realize her position in the world as a human being" (17). Her lack of autonomy tortures her into a state of indifference toward her prescribed roles in society. She neglects her husband, children, and many of her acquaintances. As her journey toward self-discovery manifests itself, she encounters numerous representations of her captivity that forcefully remind her of her lack of self.

Chopin's references to birds throughout the novel compel the reader to associate Edna with them. Chopin introduces *The Awakening* with Mr. Pontellier trapped between a garrulous parrot and a chirpy mockingbird. This image serves the double purpose of pointing out that not only are the birds held captive in cages, but Mr. Pontellier is, as well. The vast difference is that "Mr. Pontellier had the privilege of quitting their society when they ceased to be entertaining" (3). The birds do not have the same privilege. One could choose to interpret the birds in two ways. First, they could represent Edna, kept in a cage and unable to escape. Her husband can, however, as demonstrated when he escapes to New York to take care of his business. The other way they could be interpreted is by relating the parrot to Mademoiselle Reisz and the mockingbird to Adele Ratignolle. The birds seem very characteristic of Edna's two friends. The parrot, vocal in its command to go away, mimics Reisz's tendency to shun company. The mockingbird, however, sounds happy even in its cage, singing "fluty notes" (3) that are reminiscent of Adele's gay piano playing (29). They represent the two extreme characters who most influence Edna, and, more importantly, the two contradictory roles she feels she must choose between. Reisz advises her, "the bird that would soar above the level plain of tradition and prejudice must have strong wings" (96). Edna tests her sprouting wings by moving into a place she can afford with her own funds. Ironically, her new home is nicknamed the 'pigeon house' (98), whose name would imply restriction. One would think that it would cause her to



feel more trapped, but the opposite is true. The place lends her a sense of independence. Elizabeth Elz finds that a pigeon house is "for the domesticated birds kept for show or sport." In trying to escape into seclusion, she ironically achieves just the opposite: she puts herself in the public eye. One of the most significant examples of bird imagery appears at the end of the novel. Edna walks, perhaps unconsciously, toward her own self destruction. As she does so, "A bird with a broken wing was beating the air above, reeling, fluttering, circling disabled down, down to the water" (132). This event is the final indication that she cannot achieve the freedom she craves; it is an omen of failure. Again, Edna is associated with the bird, and again, she cannot be successful on her own. She therefore succumbs to the clamoring voice of the welcoming sea.

Edna's children also represent a form of restriction for her. Though Etienne and Raoul are not fully developed as characters, they play a vital role in further inhibiting Edna. Her feelings toward them waver. She feels as if her children are a "responsibility which she had blindly assumed and for which Fate had not fitted her" (23). At times, they are an annoyance. She finds their absence a relief. At other times, Edna enjoys their presence tremendously. She even seeks them out while they are with their grandmother and spends an afternoon with them. She does, however, recognize a difference between her and the other mothers she meets at Grand Isle; Edna cannot efface herself as an individual as can the mother-women (11). She does not devote herself to her husband and children the way the other women do. Essentially, she is not defined by her role of the woman of the house as society dictates she should be. Mr. Pontellier notices her neglect of the children, an anomaly he finds discouraging. As an outsider, Edna is uncomfortable with the directness of the Creole atmosphere already; her acknowledgement of a difference between her and those in her social circle sets her apart from them even further. This alienation is likely the catalyst for further neglect of her family later in the novel. When her family leaves her alone in New Orleans, she feels refreshed and relieved; everything takes on a novel appearance. She inspects the rooms as if "for the first time," sits in the chairs "as if she had never sat and reclined upon them before," and she examines the flowers as "new acquaintances" (84). She obviously does not feel the blind devotion and sense of loss that should be assailing her with their absence.

The lovers are a key reminder for Edna of a happiness inaccessible to her because it is outside marriage. Like her children, they are not fully developed characters; there is no background or economic information on them; the other characters in the novel rarely interact with them. The two stroll on the fringes of society in a somewhat haunting way. They certainly haunt Edna with their intimacy. For her, they are a representation of not only ideal, but also equal love. They are not inhibited by marriage. They do not feel restricted by society's expectations, evinced by their "disposition to linger and hold

themselves apart" (32). They've nearly formed a society of their own, separate from the Creole society that entraps Edna. To Edna's despondent point of view, this lack of matrimony suggests pleasure and fulfillment. Edna's feelings for her husband pale in comparison to the lovers' feelings for each other, and eventually, in comparison to her feelings for Robert. She feels for Mr. Pontellier "no trace of passion," merely fondness (23). Mr. Pontellier is Edna's proverbial ball and chain. He weighs her down with his expectations. In fact, he could be connected to the anchor "which had held her fast, whose chains had been loosening" (40). Her marriage becomes such a trap that she endeavors to rid herself of all traces of it. The most important symbolic object of her marriage, her wedding ring, becomes the victim of a tantrum. She attempts to crush it under her heel, but fails, symbolizing her inability to make any change in her marital state. Edna's sense of powerlessness triggers a need to "destroy something," (61), but since destroying her marriage is not an option, she strikes at the most fragile objects she can find.

While her husband is in New York and her children are in Iberville, Edna feels more at ease. She is freer to engage in work that pleases her alone, without the threat of encountering disapproval. Despite that feeling, though, she feels she must escape further from the signs of her marriage. She determines to move out of her husband's house. She does meet with disapproval for this action, though not directly, merely through a letter. Edna can find no clear reason for her decision, but she supplies Mademoiselle Reisz with three different reasons. She finally admits to herself that she is acting on instinct rather than any preconceived notion. Mr. Pontellier attempts to reduce any effects her change in living arrangements may have on the public's opinion of his financial standing by supplying an excuse: the remodeling of his home. Doris Davis interprets Edna's move into the pigeon house as her "pursuit of economic independence" (Davis 143). However, her actions indicate a desire for a more personal independence, one in which she is not imposed upon by society or men. She resolves "never again to belong to another than herself" (93). By moving out of her husband's house, Edna has forged a new role for herself separate from the ones she has seen in Mademoiselle Reisz and Adele. However, according to Jennifer Gray, "the role is far too threatening to dominant societal norms for her to sustain it against vehement ideological pressure." If confronted with the common societal concept that Edna should tend to her family over herself, she would not possess the ability (or the courage) to maintain this household if her husband and children were in town. The threat of public disgrace would coerce her back into her husband's home.

All of these restraints forced upon her beg the question, does Edna ever experience one moment of absolute freedom in the novel? The closest she reaches to her ideal freedom are the solitary moments when she is able to strip herself of her clothes. Aptly, nakedness denotes freedom from the restraints of societal pressure. As she listens to a

piece Mademoiselle Reisz plays (one that she entitles "Solitude"), she pictures a naked man who stares "with hopeless resignation...toward a distant bird winging its flight away from him" (31). The image foreshadows Edna's own hopelessness as she comes to the realization that her own freedom is impossible to obtain. Though the man is naked, and thus uninhibited by the restrictive force of clothing, he cannot follow where the freer bird flies. Edna also relates her own emerging sense of self with nakedness after an argument with Mr. Pontellier: "He could not see that she was becoming herself and daily casting aside that fictitious self which we assume like a garment with which to appear before the world" (67). Her exploration of her own body suggests this freedom more than anything. Inspecting one's body is an intimate, even taboo, act, especially in the nineteenth century New Orleans social class that Edna belongs to. As Barbara Ewell states, "To discover her body and its passions is a revelation of an autonomy she had never experienced and intimation of selfhood she cannot resist" (163). Similar to the way in which her house seems new after her husband and children depart, so is her body new to her. She rubs her arms, "observing closely, as it if were something she saw for the first time" (43). She is engaged in a process of self-discovery.

All of these depictions of Edna's captivity reinforce her lack of individuality. I concur with Dorothy Jacobs' belief that "Edna Pontellier's daring in asserting her will, striving to gain control over her life, and recognizing her relationship to the world would not be so remarkable were it not for the evidence....of the multiple constraints that are a part of her existence," (80). Her search for autonomy can be compared to what is today known as teenage angst. According to one critic, Edna experiences "adolescent emotions, suitable to a heroine who is belatedly awakening" (Showalter 19). She tests many different roles, none with success, and none of her acquaintances understands her point of view. She tells Arobin that she is "going to pull myself together...to determine what character of woman I am; for, candidly, I don't know" (95). Essentially, she doesn't possess a self; she only knows her self by society's prescribed roles, into which, she discovers, she does not fit. Marion Muirhead notes that Edna uses a "metaphor of pulling herself together, as if she were fragmented" ("Articulation and Artistry: A Conversational Analysis to The Awakening"). Similar to the vase she shatters during her tantrum in chapter seventeen, Edna is in pieces that must be picked up immediately because of their threat to the collective mental safety. Even to her husband, Edna is not an autonomous individual; when she returns to the house sunburned, he looks at her as "one looks at a valuable piece of personal property which has suffered some damage" (4). In an argument with Madame Ratignolle, Edna says, "I would give up the unessential; I would give my money, I would give my life for my children; but I wouldn't give up myself" (55). The question must be asked: does she have a self to surrender to them? She does not. Thus far, she

does not appear to have achieved autonomy. Moving out of her husband's house is a step in the direction toward finding her self, but she is ultimately faced with the hopelessness that she lives in a society dominated by patriarchy. In the renewal of her acquaintance with Robert, he professes his forbidden feelings for her along with a hopelessness that Mr. Pontellier would ever allow her to go. Edna dubs him a "foolish boy" for believing that she is one of "Mr. Pontellier's possessions to dispose of or not" (124). Robert cannot comprehend "Edna's bold claim to self-giving" (Jacobs 86) and asks, "What do you mean?" (125). Even the possibility of possessing her own autonomy is a foreign notion to the men around her.

It seems appropriate that Chopin makes an allusion to Washington Irving's "Rip Van Winkle" when Edna asks for the number of years she had been asleep. After falling asleep at Madame Antoine's, she awakes with the impression that "the whole island seems changed" (44). She is viewing the world through a new lens. Unlike Rip Van Winkle, however, Edna is unable to adapt to this new world where she is the changed one. It has transformed into "an alien world which had suddenly become antagonistic" (62). When she married Mr. Pontellier, she had a false view of the "world of reality," which she had hoped to enter "with a certain dignity...closing the portals forever behind her upon the realm of romance and dreams" (22). However, "Edna Pontellier... annihilates herself by nurturing a passion that exists only in her fancy, in her brain, in an ideal world, instead of living in the more prosaic but ultimately healthier domestic world around her" (Joslin 166-7). Accompanying her new found knowledge is the bleakness of living the rest of her life without the ideal freedom she finally beheld. After Robert leaves her, she swims out to sea almost in a haze, her mind already overworked with the unpromising prospects for the remainder of her life. The water provides a sort of comfort, enfolding her body in a welcoming embrace until she surrenders herself to it.

Davis, Doris. "The Awakening: The Economics of Tension." *Kate Chopin Reconsidered: Beyond the Bayou*. Ed. Rubin. USA: Louisiana State University Press, 1992. 143-156.

Elz, Elizabeth A. "The Awakening and A Lost Lady: Flying with broken wings and raked feathers." *Southern Literary Journal* 35.2 (2003): 13. Research Library. ProQuest. Lynn Library, Boca Raton, FL. 20 Feb. 2008 <<http://www.proquest.com/>>

Ewell, Barbara C. "Reawakenings and Romantic Self-Deceptions: Kate Chopin and the Dream of Female Selfhood." *Kate Chopin Reconsidered: Beyond the Bayou*. Ed. Rubin. USA: Louisiana State University Press, 1992. 157-165.

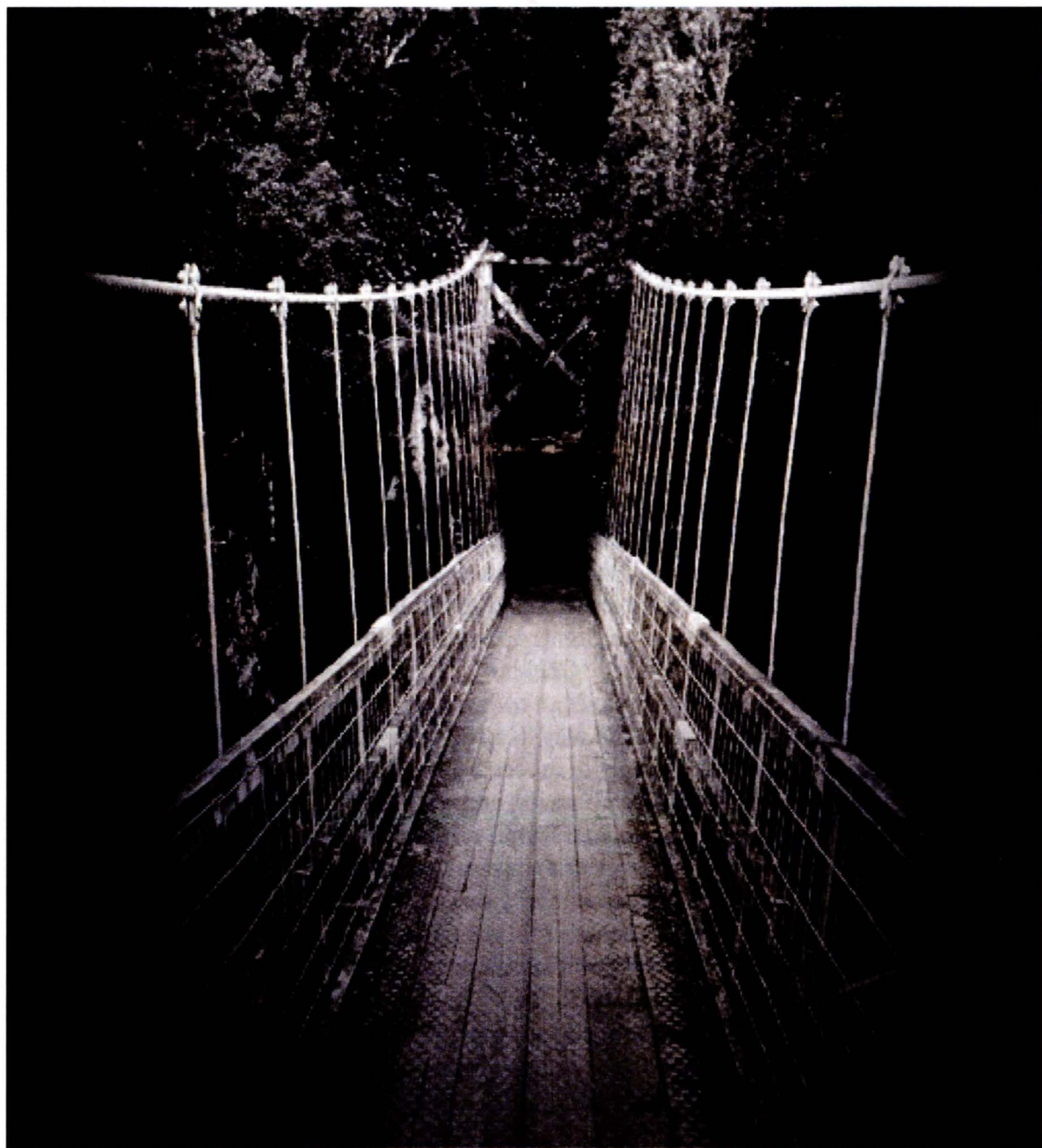
Gray, Jennifer B. "The Escape of the 'Sea': Ideology and The Awakening." *Southern Literary Journal*, 37.1, 53-73. (2004): Research Library. ProQuest. Lynn Library, Boca Raton, FL. 20 Feb. 2008 <<http://www.proquest.com/>>

Jacobs, Dorothy. "The Awakening: A Recognition of Confinement." *Kate Chopin Reconsidered: Beyond the Bayou*. Ed. Rubin. USA: Louisiana State University Press, 1992. 166-179.

Joslin, Katherine. "Finding the Self at Home: Chopin's *The Awakening* and Cather's *The Professor's House*." *Kate Chopin Reconsidered: Beyond the Bayou*. Ed. Rubin. USA: Louisiana State University Press, 1992. 166-179.

Muirhead, Marion. "Articulation and Artistry: A conversational analysis to *The Awakening*." *Southern Literary Journal* 33.1 (2000): 42-54. Research Library. ProQuest. Lynn Library, Boca Raton, FL 20, Feb 2008 <<http://www.proquest.com/>>

Showalter, Elaine. "Tradition and Female Talent: *The Awakening* as a Solitary Book." *Kate Chopin*. Ed. Harold Bloom. New York: Infobase Publishing, 2007. 7-26.



Naturalist Movement in Modern Drama

-Timea Varga

Modern drama started with the Naturalist movement, according to which life should be portrayed in the way it is, involving the audience psychologically. Looking at three plays, namely *Hedda Gabler* by Henrik Ibsen, *The Cherry Orchard* by Anton Chekhov, and *Pygmalion* by George Bernard Shaw, and imagining what each playwright had to say about the other's work, one can see that all three plays display characteristics of the Naturalist movement. Ibsen focuses very much on the idea of heredity and environment determining the lives of his characters. Chekhov concentrates on showing the reality of life by depicting how people act in contradictory ways, and Shaw tries to teach his reader by giving a more political approach to life and the world. By analyzing Chekhov's *The Cherry Orchard* from Shaw's point of view, Ibsen's *Hedda Gabler* from Chekhov's, and Shaw's *Pygmalion* from Ibsen's, I would like to discuss how each play conveys messages of the same kind about people's lives and the Naturalist movement in modern drama. Firstly, imagining that I am George Bernard Shaw, a playwright who is not afraid to attack society, I would like to critique Chekhov's play, *The Cherry Orchard*, focusing mainly on how the playwright manages to convey a political message, educating his reader about real life. Examining the play, I, as Shaw, can see many similarities between the themes of this play and *Pygmalion*, especially when it comes to discussing important issues, such as social class, human behavior, and relationships between people. I found it interesting how Chekhov depicted the world of objective reality in his play. Though intended as a comedy, there is certainly a tragedy in the situation in which Mrs. Rovensky and her family find themselves, primarily due to their inability to adapt to their new social and personal responsibilities. It is fascinating to observe how Chekhov revolved his play not only around the life of more characters but also around the characterization of idleness and vanity of a family, the Rovenskys, whose story represents the downfall of the land-owning aristocracy, as well as different people's attitude to life in the Russian society.

Although our way of approaching political issues is sometimes very unlike,



I think that Chekhov's work truly displays my view that Naturalism in modern drama should not only entertain but also educate using a political approach. I believe that the play depicts a "slice of life" where one can see the social climate of Russia at the beginning of the 20th century, when family members lose everything symbolized by their cherry orchard, being incapable of coping with their change in status when it comes to forgetting their old life. The play seems to advocate a very strong political message through the ideals held by the character of the student, Trofimov. His monologue about history and the present situation in Russia displays the idea based on the inaction of characters and their unmasking of ideological deceptions. I like how his message is strongly political, as well as encouraging and didactic. It does not only give a picture of the inaction of society, but also of the different social classes that are looked upon as inferior to others. When he says that "The vast majority of the educated people do nothing; they call themselves intellectuals, but speak to their servants as inferiors and treat their peasants like animals," (Chekhov 215) he manages to criticize the social system in a very effective way. Furthermore, when he describes that "all we have to do is to work and do our best to assist those who are looking for the truth," (Chekhov 215) he conveys Trofimov's message to the reader, encouraging him or her to actually do something to make society a better place to live in. This scene is almost like a discussion scene in my plays where characters need to find some sort of solution to their problems. It is my opinion that by using contradictory ways to describe such inaction in trying to find a solution, Chekhov highlights his moral that the past was beautiful, but the future can be, as well, if people decide to act and make the best out of it.

After having been Shaw and critiquing Chekhov's work, now I would like to discuss Henrik Ibsen's play, *Hedda Gabler*, imagining what Anton Chekhov had to say about Ibsen's work and his portrayal of the issues in it that were often explored by Naturalist playwrights. Again, just as I did while analyzing *The Cherry Orchard* from Shaw's point of view, I would like to focus on the social issues represented in Ibsen's play. As Anton Chekhov, I can conclude that Ibsen's work is more dramatic than mine, which takes a little bit away from his play's Naturalistic aspect; however, it is successful in showing a "slice of life" with an approach to reality. *Hedda Gabler* centers on society and social issues, such as class and women's role in society; however, unlike my play, it centers on the story of one main character, Hedda. It involves many poetic symbols, such as the pistols and Thea's hair, which to me seem to be the basis for Ibsen's play. I can sympathize with Ibsen when he analyzes social roles using contradictory ways of acting and thinking. For instance, at the beginning, Hedda's high social class is indicated as Miss Tesman says of Hedda, "General Gabler's daughter. What a life she had in the general's day!" (Ibsen 672). Miss Tesman, therefore, represents the idea of traditional thinking compared to

the modern way of approaching things. However, her character seems to have no way out from the trap of her society and her own self. Miss Tesman and her company believe that society is functioning well the way it is, and it has certain rules which people should obey. Hedda, on the other hand, represents the women in society who feel oppressed by their roles and would like to get out of the trap of their society and the trap of their own lives. I think that her character and the inaction are displayed by her not stepping up for herself against her abuse by the judge until the very end, where she actually manages to break the rules by doing something 'beautiful' - committing suicide. I believe that the way in which Ibsen portrays Hedda's way of living off of other people's actions, such as Eilert Loevborg, because of the lack of courage of her own part, Ibsen conveys the same, strong political message that my play, *The Cherry Orchard*, also conveys: sometimes, in society, characters must take action in order to be happier in life by becoming who they really want to be in their societies.

After having looked at two famous plays by two famous playwrights, and imagining their point of view on each other's work, lastly I would like to discuss George Bernard Shaw's play, *Pygmalion*, imagining how Henrik Ibsen would critique the play. I will be focusing on the issue of social class and women's roles in society, highlighting the role of heredity and environment in modern life and modern drama. Given that I am Ibsen, I can definitely conclude that the play *Hedda Gabler* portrays many issues also represented in Shaw's *Pygmalion*. We both focus on one single character, and our main point regarding the issues that those characters represent seem to be very alike. While reading the play, I realized that the character of the common flower girl, Eliza Dolittle, mobilizes change, as well as allows the reader to ask him or herself 'What does it mean to be a lady of a society?' and 'Are social roles innate or not?' In *Pygmalion*, Shaw writes about a world where social roles can be altered. Thus, he contradicts very effectively the traditional view of Shaw's audience according to which social class comes through heredity, with the new kind of approach in which common people can become just as equal as the members of the higher class by being taught about middle class morality and by changing their clothes and their way of speaking. Mr. Higgins's 'experiment on Eliza proves this, giving a clear criticism of society and its accepted traditional views on the roles of the individual in society. Through the use of discussion scenes in which characters have to face their problems and find a solution for them, such as in the scene where Ms. Pierce talks to Mr. Higgins about respecting people disregarding their class, Shaw opens up the eyes of the audience to the reality that is clearly displayed in the play. He also effectively teaches the reader about social issues through a very political approach that encourages reflection on traditional views and on respect that should be paid to others.

In conclusion, after having discussed these three plays from three very dissimilar

points of views, being myself, the reader again, I can say that although all three playwrights represent their ideals a little bit differently, they all underline the importance of the same issues of the Naturalist period, such as social roles, roles of women, and human nature in general. Moreover, they all teach those of us in their audience something not only about the world we live in, but also about ourselves.

Works Cited

Ibsen, Henrik. Hedda Gabler. Three Plays of Henrik Ibsen. The Heritage Press: New York, 1965.

Chekhov, Anton. The Cherry Orchard. Four Plays by Chekhov. Hill and Wang: New York, 1969.

*"When you do nothing,
you feel overwhelmed and powerless.
But when you get involved,
you feel the sense of hope and accomplishment
that comes from knowing you
are working to make things better."*

-unknown



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